



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7  
25 FUNSTON ROAD  
KANSAS CITY, KANSAS 66115

Coded

Site:	Linwood Mining
ID #:	1AD920852297
Break:	1e3
Other:	EPA
RECEIVED 3-19-90	

DATE: MAR 19 1990

MAR 19 1990

PREP SECTION

MEMORANDUM

SUBJECT: Data Transmittal for Activity #: DSX04,  
Site Description: Linwood Quarry

FROM: Andrea Jirka   
Chief, Laboratory Branch, ENSV

TO: Robert Morby  
Chief, Superfund Branch, WSTM

ATTN: Pete Culver

Attached is the data transmittal for the above referenced site. These data have met all quality assurance requirements unless indicated otherwise in a data package. This should be considered a        Partial or  Complete data transmittal (completes transmittal of \_\_\_\_\_). If you have any questions or comments, please contact Dee Simmons at 236-3881.

**Attachments**

cc: Data Files  
Ann Melia, E&E/FIT

30815339



Superfund

DATA REPORTING / QUALIFICATION CODES

- U - The material was analyzed for, but was not detected. The associated numerical value is the sample detection limit.
- J - The associated numerical value is an estimated quantity (explanation attached).
- I - The data are invalid (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.
- N - Sample not analyzed.

CODES FOR FLASH POINT DATA

- L - The sample did not ignite or "flash". This is the highest temperature at which the sample was tested. It is possible that the material may be ignitable at higher temperatures.
- K - The sample did ignite or "flash" at the lowest temperature tested. This is usually the ambient temperature at the time of the test. It is possible that the material may be ignitable at even lower temperatures.

## ANALYSIS TYPE: METALS, TOTAL

TITLE: LINWOOD QUARRY                    MATRIX: SEDIMENT                    UNITS: MG/KG  
 LAB: SILVER VALLEY                    METHOD: CS0788A                    CASE: 13396  
 SAMPLE PREP: \_\_\_\_\_ ANALYST/ENTRY: PLC REVIEWER: P.Cox                    DATE: 01/18/90  
 REVIEW LEVEL: 2                            DATA FILE : P29

SAMPLES	DSX04001	DSX04002
ALUMINUM	8400	5800
ANTIMONY	20 U	17 U
ARSENIC	7.9	7.4
BARIUM	76	66
BERYLLIUM	0.69 J	1.5 U
CADMIUM	1.6 U	1.5 U
CALCIUM	240000	220000
CHROMIUM	14 J	8.7 J
COBALT	4.5 J	2.1 J
COPPER	20	17
IRON	9200 J	7800 J
LEAD	32	23
MAGNESIUM	12000	20000
MANGANESE	290 J	290 J
MERCURY	0.38	0.41
NICKEL	120	110
POTASSIUM	3000	3600
SELENIUM	1.6 U	1.2 J
SILVER	3.3 U	2.9 U
SODIUM	1300 J	1400 J
THALLIUM	1.8 J	2.7 J
VANADIUM	460	430
ZINC	35 J	17 J
CYANIDE	N	N

## ANALYSIS TYPE: EP TOXICITY

TITLE: Linwood Quarry  
LAB: Rocky Mtn. Anal.  
SAMPLE PREP: \_\_\_\_\_  
REVIEW LEVEL: 2

MATRIX: WATER  
METHOD: C0788EM  
ANALYST/ENTRY: DEW REVIEWER: *SAC*  
DATA FILE : M96

UNITS: UG/L  
CASE: 5051G  
DATE: 02/07/90

## SAMPLES

DSX04001 DSX04002

ARSENIC	4.7 J	3.4 J
BARIUM	180 J	240 J
CADMIUM	15 U	15 U
CHROMIUM	25 U	25 U
LEAD	50 U	50 U
MERCURY	0.20 U	0.20 U
SELENIUM	12 J	50 U
SILVER	25 U	25 U

ANALYSIS TYPE: SULFIDE

TITLE: LINWOOD QUARRY

LAB: ENSECO/RMAL

SAMPLE PREP: \_\_\_\_\_ ANALYST/ENTRY: PLC REVIEWER: p.cox

REVIEW LEVEL: 2

MATRIX: FLY ASH

METHOD: C9030SA

UNITS: MG/KG

CASE: 5150G

DATE: 02/09/90

SAMPLE NO.                    RESULT

DSX04001	.5	U
DSX04002	.5	U

## ANALYSIS TYPE: SEMIVOLATILES--PAGE 1

TITLE: LINWOOD QUARRY  
 LAB: EIRA  
 SAMPLE PREP: \_\_\_\_\_  
 REVIEW LEVEL: 2

MATRIX: SEDIMENT  
 METHOD: CS0288A  
 REVIEWER: D.COX  
 DATA FILE : P31

UNITS: UG/KG  
 CASE: 13396  
 DATE: 01/30/90

SAMPLES	DSX04001	DSX04002
PHENOL	530 U	480 U
BIS(2-CHLOROETHYL) ETHER	530 U	480 U
2-CHLOROPHENOL	530 U	480 U
1,3 DICHLOROBENZENE	530 U	480 U
1,4 DICHLOROBENZENE	530 U	480 U
BENZYL ALCOHOL	530 U	480 U
1,2 DICHLOROBENZENE	530 U	480 U
2-METHYLPHENOL	530 U	480 U
BIS(2-CHLOROISOPROPYL) ETHER	530 U	480 U
4-METHYLPHENOL	530 U	480 U
N-NITROSO-DIPROPYLAMINE	530 U	480 U
HEXACHLOROETHANE	530 U	480 U
NITROBENZENE	530 U	480 U
ISOPHORONE	530 U	480 U
2-NITROPHENOL	530 U	480 U
2,4-DIMETHYLPHENOL	530 U	480 U
BENZOIC ACID	2600 U	2300 U
BIS(2-CHLOROETHOXY) METHANE	530 U	480 U
2,4 DICHLOROPHENOL	530 U	480 U
1,2,4-TRICHLOROBENZENE	530 U	480 U
NAPHTHALENE	140 J	480 U
4-CHLOROANILINE	530 U	480 U
HEXACHLOROBUTADIENE	530 U	480 U
4-CHLORO-3-METHYLPHENOL	530 U	480 U
2-METHYLNAPHTHALENE	230 J	480 U
HEXACHLOROCYCLOPENTADIENE	530 U	480 U
2,4,6-TRICHLOROPHENOL	530 U	480 U
2,4,5-TRICHLOROPHENOL	2600 U	2300 U
2-CHLORONAPHTHALENE	530 U	480 U
2-NITROANILINE	2600 U	2300 U
DIMETHYLPHthalATE	530 U	480 U
ACENAPHTHYLENE	530 U	480 U
3-NITROANILINE	2600 U	2300 U
ACENAPHTHENE	530 U	480 U
2,4-DINITROPHENOL	2600 U	2300 U
4-NITROPHENOL	2600 U	2300 U
DIBENZOFURAN	530 U	480 U
2,4-DINITROTOLUENE	530 U	480 U

## ANALYSIS TYPE: SEMIVOLATILES--PAGE 2

TITLE: LINWOOD QUARRY                    MATRIX: SEDIMENT                    UNITS: UG/KG  
 LAB: EIRA                                METHOD: CS0288A                    CASE: 13396  
 SAMPLE PREP: \_\_\_\_\_ ANALYST/ENTRY: PLC REVIEWER: P.Cox                    DATE: 01/30/90  
 REVIEW LEVEL: 2                            DATA FILE : P32

SAMPLES	DSX04001	DSX04002
2,6-DINITROTOLUENE	530 U	480 U
DIETHYLPHTHALATE	530 U	480 U
4-CHLOROPHENYL PHENYL ETHER	530 U	480 U
FLUORENE	530 U	480 U
4-NITROANILINE	2600 U	2300 U
4,6-DINITRO-2-METHYLPHENOL	2600 U	2300 U
N-NITROSODIPHENYLAMINE	530 U	480 U
4-BROMOPHENYL PHENYL ETHER	530 U	480 U
HEXACHLOROBENZENE	530 U	480 U
PENTACHLOROPHENOL	2600 U	2300 U
PHENANTHRENE	530 U	480 U
ANTHRACENE	530 U	480 U
DI-N-BUTYLPHTHALATE	530 U	480 U
FLUORANTHENE	530 U	480 U
PYRENE	530 U	480 U
BUTYL BENZYL PHTHALATE	530 U	480 U
3,3' DICHLOROBENZIDINE	1100 U	960 U
BENZO(A)ANTHRACENE	530 U	480 U
BIS(2-ETHYLHEXYL)PHTHALATE	530 U	480 U
CHRYSENE	530 U	480 U
DI-N-OCTYL PHTHALATE	530 U	480 U
BENZO(B)FLUORANTHENE	530 U	480 U
BENZO(K)FLUORANTHENE	530 U	480 U
BENZO(A)PYRENE	530 U	480 U
INDENO(1,2,3-CD)PYRENE	530 U	480 U
DIBENZO(A,H)ANTHRACENE	530 U	480 U
BENZO(G,H,I)PERYLENE	530 U	480 U

## TENTATIVELY IDENTIFIED COMPOUNDS

TITLE: LINWOOD QUARRY  
LAB: EIRA  
ANALYST/ENTRY: PLC  
REVIEW LEVEL: 2

MATRIX: SEDIMENT  
METHOD: CS0288A  
REVIEWER: O.Cox  
DATA FILE : P33

UNITS: UG/KG  
CASE: 13396  
DATE: 01/30/90

SAMPLE NO.	COMPOUND NAME	FRACTION	EST. CONCENTRATION
DSX04001			
	C9H12 ISOMER	BNA	600 J
	C10H14 ISOMER	BNA	600 J
	16 UNKNOWN ALKANES	BNA	400-3000 J
	UNKNOWN ALKENE	BNA	400 J
	UNKNOWN	BNA	500 J
DSX04002	UNKNOWN ALKANE	BNA	500 J

- \* THIS IS A CRUDE ESTIMATION BASED ON RESPONSE RELATIVE TO AN INTERNAL STANDARD. AN AUTHENTIC STANDARD HAS NOT BEEN RUN.
- \*\* THE COMPOUNDS WERE IDENTIFIED USING A LIBRARY SEARCH ROUTINE. AUTHENTIC STANDARDS HAVE NOT BEEN ANALYZED TO VERIFY COMPOUND MASS SPECTRA AND RETENTION TIMES.

U.S. ENVIRONMENTAL PROTECTION AGENCY  
Environmental Services Assistance Team -- Zone II

**ICF Technology, Inc.**

**NSI Technology Services Corp.**

**The Bionetics Corp.**

ESAT Region VII  
NSI Technology Services  
25 Funston Road  
Kansas City, KS 66115  
(913) 236-3881

MEMORANDUM

TO: Debra Morey, Chemist, CLQA/LABO/EPA  
THRU: Harold Brown, Ph.D., DP0/LABO/EPA  
  
FROM: Peggy Cox, QA/QC Chemist/ESAT/NSI *Re/ma*  
THRU: Ronald Ross, Manager/ESAT/NSI  
  
DATE: January 18, 1990  
  
SUBJECT: Review of data for LINWOOD QUARRY  
TID#: 07-8909-308  
ASSIGNMENT#: 371  
ICF ACCT#: 26-308-02  
NSI S.O.#: 4633-3082

These data were reviewed according to the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses," July 1, 1988 revision.

The following comments and attached data sheets are a result of NSI Technology Services Corporation's review of the above mentioned data from the contract laboratory.

CASE NO.: 13396  
CONTRACT NO.: 68-W8-0074  
SITE: LINWOOD QUARRY  
REVIEWER: P. COX

LABORATORY: SILVER VALLEY  
METHOD NO.: CS0788A  
EPA ACTIVITY: DSX04  
MATRIX: SOIL

SMO SAMPLE NO.

MGG396  
MGG397

EPA SAMPLE NO.

DSX04001  
DSX04002

## **GENERAL**

Case 13396 contained 11 soil samples (2 actual; 9 QC) analyzed for total metals at the low level concentration. Arsenic (As), lead (Pb), selenium (Se), and thallium (Tl) were analyzed by graphite furnace atomic absorption (GFAA) spectroscopy and mercury (Hg) by cold vapor. Data review was performed at level 2.

### **1. TECHNICAL HOLDING TIMES and PRESERVATION**

A. No technical holding times or required preservation are specified for soil samples.

### **2. INITIAL and CONTINUING CALIBRATION**

A. Initial and continuing calibrations were within quality control limit requirements.

### **3. BLANKS**

A. No analytes were detected above the contract required detection limit (CRDL) in any blank.

B. Levels of analytes greater than the instrument detection limit (IDL) were detected for aluminum (Al), chromium (Cr), copper (Cu), iron (Fe), lead (Pb), and zinc (Zn). Analytes greater than the instrument detection limit (IDL) but less than 5 times the highest level detected in the blank were qualified with a "U" code.

### **4. ICP INTERFERENCE CHECK**

A. All analytes contained in the ICP interference check sample were within quality control limit requirements except antimony (Sb), potassium (K), and sodium (Na) which were detected but not elements in the AB ICS solution. Antimony (Sb) and potassium (K) were reported at levels less than the instrument detection limits (IDL) and sodium (Na) at levels greater than the instrument detection limit. All positive sodium (Na) results were qualified by the ICP interference check sample with a "J" code.

### **5. LABORATORY CONTROL SAMPLE**

A. All laboratory control samples analyzed met quality control limit requirements.

## **6. DUPLICATES**

A. All analytes were within quality control limit requirements except chromium (Cr). All positive chromium (Cr) results were qualified by the duplicate rules with a "J" code.

## **7. SPIKES**

A. All analytes were within quality control limit requirements for percent recovery except antimony (Sb), silver (Ag), and selenium (Se). Positive analyte results were qualified with a "J" code by the spike recovery rules.

## **8. GRAPHITE FURNACE ATOMIC ABSORPTION (GFAA) SPECTROSCOPY**

A. All quality control limit requirement criteria for graphite furnace atomic absorption (GFAA) spectroscopy were met.

B. Standard addition data for selenium (Se) in sample DSX04002 (MGG397) resulted in a correlation coefficient of less than 0.995. No data was qualified since the analyte concentration was greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).

## **9. ICP SERIAL DILUTION**

A. Iron (Fe), manganese (Mn), and zinc (Zn) were outside quality control limit requirements for percent difference on the ICP serial dilution. Positive results in all samples were qualified with a "J" code by the ICP serial dilution.

## **10. PERFORMANCE EVALUATION SAMPLE**

A. No performance evaluation sample was submitted to the laboratory for analysis associated with this case and SDG number.

## 11. SUMMARY

A. Blank rules were applied to all samples for aluminum (Al), chromium (Cr), copper (Cu), iron (Fe), lead (Pb), and zinc (Zn). No data were qualified according to the blank rule.

B. Positive sample results for sodium (Na) were qualified with a "J" code due to significant concentrations present in the ICP check sample.

C. All positive sample data for chromium (Cr) were qualified with a "J" code because duplicate sample analyses indicated problems maintaining acceptable precision.

D. All positive sample data for antimony (Sb), silver (Ag), and selenium (Se) were qualified with a "J" code because spike sample analyses indicated unacceptable accuracy.

E. Some analyte data were "J" coded due to the analyte concentration being greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).

F. Positive results for iron (Fe), manganese (Mn), and zinc (Zn) were qualified with a "J" code by the ICP serial dilution rules.

G. This data package generally meets the requirements for precision, accuracy, and completeness as described in SOW CS0788A, with the exceptions noted above.

**U.S. ENVIRONMENTAL PROTECTION AGENCY**

**ENVIRONMENTAL SERVICES ASSISTANCE TEAM -- Zone II**

**ICF Technology, Inc.**

**ESAT Region VII**

**NSI Technology Services Corp.**

**NSI Technology Services**

**25 Funston Road**

**Kansas City, KS 66115**

**The Bionetics Corp.**

**(913) 236-3881**

---

**MEMORANDUM**

**TO:** Debra Morey, Chemist, CLQA/LABO/EPA

**THRU:** Harold Brown, Ph.D, DP0/LABO/EPA

**FROM:** Peggy Cox, QA/QC Chemist/ESAT/NSI *RC/AM*

**THRU:** Ronald Ross, Manager/ESAT/NSI

**DATE:** January 31, 1990

**SUBJECT:** Review of data for LINWOOD QUARRY

TID#: 07-8909-308

ASSIGNMENT#: 383

ICF ACCT#: 26-308-02

NSI S.O.#: 4633-3082

These data were reviewed according to the "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses," February 1, 1988 revision and the "Laboratory Data Validation Functional Guidelines for Evaluating Pesticides and PCBs."

The following comments and attached data sheets are a result of NSI Technology Services Corporation's review of the above mentioned data from the contract laboratory.

CASE NO.: 13396

LABORATORY: EIRA

CONTRACT NO.: 68-01-7414

METHOD NO.: CS0288A

SITE: LINWOOD QUARRY

EPA ACTIVITY: DSX04

REVIEWER: P. COX

MATRIX: SOIL

**SMO SAMPLE NO.**

**EPA SAMPLE NO.**

GJ694

DSX04001

GJ695

DSX04002

## **GENERAL**

Case 13396 contained 7 soil samples (2 actual; 5 QC) analyzed for base/ neutrals and acids at the low level concentration. Data review was performed at level 2.

### **1. TECHNICAL HOLDING TIMES and PRESERVATION**

A. No technical holding times or required preservation are specified for soil samples.

### **2. GC/MS TUNING**

A. All GC/MS tunings and mass calibrations were within quality control limit requirements for decafluorotriphenylphosphine (DFTPP).

### **3. INITIAL and CONTINUING CALIBRATION**

A. N-nitroso-di-n-propylamine, benzoic acid, 2,6-dinitrotoluene, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, and pentachlorophenol were outside quality control limit requirements for percent difference (%D) (greater than 25%) on the continuing calibration. Sample results for these compounds were non-detect and resulted in no qualification code being applied except for n-nitroso-di-n-propylamine in quality control samples DSX04001S and DSX04001W which were "J" coded.

### **4. INTERNAL STANDARD RESPONSE**

A. All internal standard response areas were within a factor of 2 when comparing samples and their associated continuing calibration response areas.

### **5. BLANKS**

A. One method blank was analyzed for the base/neutral and acid fractions with no compounds reported.

### **6. SURROGATE RECOVERY**

A. All surrogates were within quality control limit requirements for percent recovery except terphenyl-d14 in sample DSX04002 (GJ695) and 2,4,6-tribromophenol in samples DSX04001 (GJ694), DSX04001S, and DSX04001W. No data were qualified by the surrogate recovery rules.

## **7. MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

A. A matrix spike/matrix spike duplicate was analyzed for base/ neutrals and acids and was within quality control limit requirements except percent recovery of 4-nitrophenol and pentachlorophenol in the matrix spike and matrix spike duplicate. Both compounds were reported with 0% recovery due to matrix effects. No data were qualified by the matrix spike/matrix spike duplicate.

## **8. PERFORMANCE EVALUATION SAMPLE**

A. No performance evaluation sample was submitted to the laboratory for analysis associated with this case and SDG number.

## **9. COMPOUND IDENTIFICATION and QUANTITATION**

A. All target compound identifications were supported by good agreement between sample and standard mass spectra submitted for each positive sample response.

## **10. SUMMARY**

A. N-nitroso-di-n-propylamine in quality control samples DSX04001S and DSX04001W were "J" coded due to the continuing calibration exceeding quality control limit criterion for accuracy.

B. Naphthalene and 2-methylnaphthalene were "J" coded in sample DSX04001 (GJ694) due to the compound concentration being greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).

C. This data package generally meets the requirements for precision, accuracy, and completeness as described in SOW for Organic Analysis dated February 1988, with the exceptions noted above.

U.S. ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL SERVICES ASSISTANCE TEAM -- Zone II

ICF Technology, Inc.	ESAT Region VII
NSI Technology Services Corp.	NSI Technology Services 25 Funston Road Kansas City, KS 66115 (913) 236-3881
The Bionetics Corp.	

---

TO: Debra Morey  
Data Review Task Monitor

THRU: Harold Brown, Ph.D.  
ESAT Deputy Project Officer, EPA

FROM: D. Eric Woodland *EW*  
ESAT Data Reviewer

THRU: Ronald A. Ross  
ESAT Team Manager

DATE: February 7, 1990

SUBJECT: Review of inorganic data for Linwood Quarry.

TID# 07-8909-308  
ASSIGNMENT# 396  
ICF ACCT# 26-308-02  
NSI S.O.# 4633-3082

These data were reviewed according to the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses," July 1988 revision and the Region VII Inorganic Data Review Training Manual as guidance.

The following comments and attached data sheets are a result of the ESAT review of the above mentioned data from the contract laboratory.

CASE NO.: 5051G LABORATORY: Rocky Mt. Anal.  
SITE: Linwood Quarry METHOD NO.: C0788EM  
REVIEWER: D. Eric Woodland EPA ACTIVITY NO.: DSX04  
MATRIX: SOIL

EP TOX METALS (SOIL)  
SMO Sample No. EPA Sample No.

5051G-1	DSX04001
5051G-2	DSX04002

**GENERAL**

This data review assignment covers TWO SOIL samples analyzed for 8 EP TOX METALS for case number 5051G. These samples were also analyzed for sulfide, but the data review will be done separately. There were no field blanks, duplicates or performance samples included with this assignment.

**1. Technical Holding Times / Preservation**

Technical holding times were observed for the EP TOX extracts for all analytes.

**2. Initial and Continuing Calibration**

All percent recoveries were within control limits.

**3. Blanks**

Pb was detected in the blanks. Corresponding sample results were qualified according to the blank rule using five times the highest blank value. Sample results requiring modification are reported as non-detect on the attached data sheets.

EP TOX METALS  
(SOIL)

<u>Analyte</u>	<u>5 x Highest Blank (ug/L)</u>	<u>Qualified Samples</u>
Pb	5.5	DSX04002

**4. ICP Interference Check**

Recoveries of solution AB analytes were within control limits.

**5. Laboratory Control Standard (LCS)**

LCS results were within established control limits. A Hg LCS was not analyzed.

**6. Duplicates**

The RPDs for all analytes were within control limits.

**7. Matrix Spike Sample**

Se was out of range for matrix spike recovery. No samples had data qualified.

**8. ICP Serial Dilution**

All results were within limits.

**9. Furnace Atomic Absorption**

The MSA correlation coefficient for Pb for the matrix spike was out of control limits. No sample results were qualified.

**10. Summary**

One sample result was qualified for Pb by the blank rule. No other sample results were qualified.

These results are for EP TOX metals. The lab analyzed the samples at a five fold dilution because of high Ca levels.

There were 5 results reported between the IDL and CRDL. These results are routinely "J" coded.

This data package is acceptable in terms of requirements for accuracy, precision, and completeness as described in SOP 9561M00.

U.S. ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL SERVICES ASSISTANCE TEAM -- Zone II

ICF Technology, Inc.

ESAT Region VII

NSI Technology Services Corp.

NSI Technology Services  
25 Funston Road  
Kansas City, KS 66115  
(913) 236-3881

The Bionetics Corp.

MEMORANDUM

TO: Debra Morey, Chemist, CLQA/LABO/EPA  
THRU: Harold Brown, Ph.D, DP0/LABO/EPA

FROM: Peggy Cox, QA/QC Chemist/ESAT/NSI *Re/AM*  
THRU: Ronald Ross, Manager/ESAT/NSI

DATE: February 8, 1990

SUBJECT: Review of data for LINWOOD QUARRY

TID#: 07-8909-308

ASSIGNMENT#: 396B

ICF ACCT#: 26-308-02

NSI S.O.#: 4633-3082

These data were reviewed according to the "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses," July 1, 1988 revision.

The following comments and attached data sheets are a result of NSI Technology Services Corporation's review of the above mentioned data from the contract laboratory.

CASE NO.: SAS 5150G  
CONTRACT NO.: V0122  
SITE: LINWOOD QUARRY  
REVIEWER: P. COX

LABORATORY: ENSECO/RMAL  
METHOD NO.: C9030SA  
EPA ACTIVITY: DSX04  
MATRIX: FLY ASH

SMO SAMPLE NO.

EPA SAMPLE NO.

5150G1  
5150G2

DSX04001  
DSX04002

## **GENERAL**

Special Analytical Services (SAS) request 5150G contained 6 fly ash samples (2 actual; 4 QC) analyzed for total available sulfide (insoluble). Laboratory did not adhere to the SAS request in that duplicate and matrix spike analyses were performed on only one environmental sample, instead of both, and no laboratory check sample was analyzed. Data review was performed at level 2.

### **1. TECHNICAL HOLDING TIMES and PRESERVATION**

A. No technical holding times or required preservation are specified for fly ash samples.

### **2. INITIAL and CONTINUING CALIBRATION**

A. Initial and continuing calibrations were within quality control limit requirements.

### **3. BLANKS**

A. No sulfide was detected above the contract required detection limit (CRDL) in any blank.

### **4. LABORATORY CHECK SAMPLE**

A. No laboratory check sample associated with this SAS was analyzed for sulfide.

### **5. DUPLICATES**

A. One duplicate analyses was performed and was within quality control limit requirements ( $\pm 20\%$ ).

### **6. SPIKES**

A. One matrix spike analyses was performed and was outside quality control limit requirements for percent recovery (75-125%). Sample was reprepped and reanalyzed but percent recovery was still outside quality control limits. No data were qualified by the matrix spike.

### **7. PERFORMANCE EVALUATION SAMPLE**

A. No performance evaluation sample was submitted to the laboratory for analysis associated with this case and SDG number.

## **8. SUMMARY**

A. This data package generally meets the requirements for precision, accuracy, and completeness as described in SW-846, Method 9030.

## DATA QUALITY REPORT

## FOR ACTIVITY ODSX04

## = NO QC FILE  
 \*\*\* = INSUFFICIENT DATA

(1) EXPRESSED AS THE MEAN RELATIVE STANDARD DEVIATION  
 (2) EXPRESSED AS PERCENT OF SPIKE RECOVERY

MGP NUM	PARAMETER DESCRIPTION	UNITS	TOTAL METHOD		TOTAL (1)		TOTAL (2)	
			DETECTION LIMIT	QC USED	METHOD PRECISION	QC USED	METHOD ACCURACY	QC USED
SM01	SILVER	BY ICAP	MG/KG	***	***	12.1	( ,D)	103
SM02	ALUMINUM	BY ICAP	MG/KG	***	***	17.6	( ,D)	97.7
SM03	ARSENIC	BY ICAP	MG/KG	***	45.0	( ,D)	112	(R,S,B,W)
SM04	BARIUM	BY ICAP	MG/KG	***	51.6	( ,D)	***	(R,S,B,W)
SM05	BERYLLIUM	BY ICAP	MG/KG	***	27.6	( ,D)	96.2	(R,S,B,W)
SM06	CADMIUM	BY ICAP	MG/KG	***	10.1	( ,D)	91.1	(R,S,B,W)
SM07	COBALT	BY ICAP	MG/KG	***	10.5	( ,D)	98.7	(R,S,B,W)
SM08	CHROMIUM	BY ICAP	MG/KG	***	2.58	( ,D)	99.5	(R,S,B,W)
SM09	COPPER	BY ICAP	MG/KG	***	11.4	( ,D)	106	(R,S,B,W)
SM10	IRON	BY ICAP	MG/KG	***	130	( ,D)	91.8	(R,S,B,W)
SM11	MANGANESE	BY ICAP	MG/KG	***	55.1	( ,D)	92.6	(R,S,B,W)
SM12	MOLYBDENUM	BY ICAP	MG/KG	***	***	***	***	(R,S,B,W)
SM13	NICKEL	BY ICAP	MG/KG	***	###	###	###	(R,S,B,W)
SM14	LEAD	BY ICAP	MG/KG	***	###	###	###	(R,S,B,W)
SM15	ANTIMONY	BY ICAP	MG/KG	***	11.5	( ,D)	101	(R,S,B,W)
SM16	SELENIUM	BY ICAP	MG/KG	***	18.9	( ,D)	93.0	(R,S,B,W)
SM17	TITANIUM	BY ICAP	MG/KG	###	15.3	( ,D)	94.0	(R,S,B,W)
SM18	THALLIUM	BY ICAP	MG/KG	***	16.8	( ,D)	101	(R,S,B,W)
SM19	VANADIUM	BY ICAP	MG/KG	***	5.97	( ,D)	106	(R,S,B,W)
SM20	ZINC	BY ICAP	MG/KG	***	6.47	( ,D)	104	(R,S,B,W)
SM21	CALCIUM	BY ICAP	MG/KG	***	###	###	###	(R,S,B,W)
SM22	MAGNESIUM	BY ICAP	MG/KG	***	###	###	###	(R,S,B,W)
SM23	SODIUM	BY ICAP	MG/KG	***	###	###	###	(R,S,B,W)
SM24	POTASSIUM	BY ICAP	MG/KG	***	###	###	###	(R,S,B,W)
SS01	PHENOL		UG/KG	###	###	###	###	(R,S,B,W)
SS03	BIS(2-CHLOROETHYL) ETHER		UG/KG	###	###	###	###	(R,S,B,W)
SS04	2-CHLOROPHENOL		UG/KG	###	###	###	###	(R,S,B,W)
SS05	1,3-DICHLOROBENZENE		UG/KG	###	###	###	###	(R,S,B,W)
SS06	1,4-DICHLOROBENZENE		UG/KG	###	###	###	###	(R,S,B,W)
SS07	BENZYL ALCOHOL		UG/KG	###	###	###	###	(R,S,B,W)
SS08	1,2-DICHLOROBENZENE		UG/KG	###	###	###	###	(R,S,B,W)
SS09	2-METHYLPHENOL (O-CRESOL)		UG/KG	###	###	###	###	(R,S,B,W)
SS10	BIS(2-CHLOROISOPROPYL) ETHER		UG/KG	###	###	###	###	(R,S,B,W)
SS11	4-METHYLPHENOL (P-CRESOL)		UG/KG	###	###	###	###	(R,S,B,W)
SS12	N-NITROSO-DIPROPYLAMINE		UG/KG	##	##	##	##	(R,S,B,W)
SS13	HEXAChLOROETHANE		UG/KG	##	##	##	##	(R,S,B,W)
SS14	NITROBENZENE		UG/KG	##	##	##	##	(R,S,B,W)
SS15	ISOPHORONE		UG/KG	##	##	##	##	(R,S,B,W)
SS16	2-NITROPHENOL		UG/KG	##	##	##	##	(R,S,B,W)
SS17	2,4-DIMETHYLPHENOL		UG/KG	##	##	##	##	(R,S,B,W)
SS18	BENZOIC ACID		UG/KG	##	##	##	##	(R,S,B,W)
SS19	BIS(2-CHLOROETHOXY) METHANE		UG/KG	##	##	##	##	(R,S,B,W)
SS20	2,4-DICHLOROPHENOL		UG/KG	##	##	##	##	(R,S,B,W)
SS21	1,2,4-TRICHLOROBENZENE		UG/KG	##	##	##	##	(R,S,B,W)
SS22	NAPHTHALENE		UG/KG	##	##	##	##	(R,S,B,W)
SS23	4-CHLORANILINE		UG/KG	##	##	##	##	(R,S,B,W)
SS24	HEXAChLOROBUTADIENE		UG/KG	##	##	##	##	(R,S,B,W)

## DATA QUALITY REPORT

## FOR ACTIVITY ODSX04

# = NC QC FILE

\*\*\* = INSUFFICIENT DATA

(1) EXPRESSED AS THE MEAN RELATIVE STANDARD DEVIATION

(2) EXPRESSED AS PERCENT OF SPIKE RECOVERY

MGP NUM	PARAMETER DESCRIPTION	UNITS	TOTAL METHOD		TOTAL (1)		TOTAL (2)	
			DETECTION LIMIT	QC USED	METHOD PRECISION	QC USED	METHOD ACCURACY	QC USED
SS25	4-CHLORO-2-METHYLPHENOL	UG/KG	###		###		###	
SS26	2-METHYLNAPHTHALENE	UG/KG	###		###		###	
SS27	HEXAChLOROCYCLOPENTADIENE	UG/KG	###		###		###	
SS28	2,4,6-TRICHLOROPHENOL	UG/KG	###		###		###	
SS29	2,4,5-TRICHLOROPHENOL	UG/KG	###		###		###	
SS30	2-CHLORONAPHTHALENE	UG/KG	###		###		###	
SS31	2-NITROANILINE	UG/KG	###		###		###	
SS32	DIMETHYLPHthalATE	UG/KG	###		###		###	
SS33	ACENAPHTHYLENE	UG/KG	###		###		###	
SS34	3-NITROANILINE	UG/KG	###		###		###	
SS35	ACENAPTHENE	UG/KG	###		#**		###	
SS36	2,4-DINITROPHENOL	UG/KG	###		###		###	
SS37	4-NITROPHENOL	UG/KG	###		###		###	
SS38	DIETHZOFURAN	UG/KG	###		###		###	
SS39	2,4-DINITROTOLUENE	UG/KG	###		###		###	
SS40	2,6-DINITROTOLUENE	UG/KG	###		###		###	
SS41	DIETHYLPHthalATE	UG/KG	###		###		###	
SS42	4-CHLOROPHENYL PHENYL ETHER	UG/KG	###		###		###	
SS43	FLUORENE	UG/KG	###		###		###	
SS44	4-NITROANILINE	UG/KG	###		###		###	
SS45	4,6-DINITRO-2-METHYLPHENOL	UG/KG	###		###		###	
SS46	N-NITROSDIPHENYLAMINE	UG/KG	###		###		###	
SS47	4-BROMOPHENYL PHENYL ETHER	UG/KG	###		###		###	
SS48	HEXAChLOROBENZENE	UG/KG	###		###		###	
SS49	PENTACHLOROPHENOL	UG/KG	###		###		###	
SS50	PHENANTHRENE	UG/KG	###		#**		###	
SS51	ANTHRACENE	UG/KG	###		###		###	
SS52	DI-N-BUTYL PHTHALATE	UG/KG	###		###		###	
SS53	FLUORANTHENE	UG/KG	###		#**		###	
SS54	PYRENE	UG/KG	###		#**		###	
SS55	BUTYL BENZYL PHTHALATE	UG/KG	###		###		###	
SS56	3,3'-DICHLOROBENZIDINE	UG/KG	###		###		###	
SS57	BENZO(A)ANTHRACENE	UG/KG	###		#**		###	
SS58	BIS(2-Ethylhexyl)PHTHALATE	UG/KG	###		###		###	
SS59	CHRYSINE	UG/KG	###		#**		###	
SS60	DI-N-OCTYL PHTHALATE	UG/KG	###		###		###	
SS61	BENZO(B)FLUORANTHENE	UG/KG	###		###		###	
SS62	BENZO(K)FLUORANTHENE	UG/KG	###		#**		###	
SS63	BENZO(A)PYRCNE	UG/KG	###		#**		###	
SS64	INDENO(1,2,3-CD)PYRENE	UG/KG	###		#**		###	
SS65	DI-BENZO(A,H)ANTHRACENE	UG/KG	###		#**		###	
SS66	BENZO(G,H,I)PYRYLNE	UG/KG	###		#**		###	
ST13	SULFIDE	MG/G	###		#**		#**	
ZZ01	SAMPLE NUMBER	NA	###		###		###	
ZZ02	ACTIVITY CODE	NA	###		###		###	

## ANALYSIS REQUEST REPORT

FOR ACTIVITY: DSX04

S P F D

03/13/90 16:28:36

\* LABO APPROVED

FY: 90 ACTIVITY: DSX04 DESCRIPTION: LINWOOD QUARRY LOCATION: ICWA

STATUS: ACTIVE TYPE: SAMPLING - IN HOUSE ANALYSIS PROJECT: A34

LABO DUE DATE IS 1/3/90. REPORT DUE DATE IS 1/24/90.

INSPECTION DATE: 12/4/89 ALL DATA APPROVED BY LABO DATE: 03/13/90 FINAL REPORT TRANSMITTED DATE: 00/00/00

EXPECTED LABO TURNAROUND TIME IS 30 DAYS EXPECTED REPORT TURNAROUND TIME IS 51 DAYS

ACTUAL LABO TURNAROUND TIME IS 99 DAYS ACTUAL REPORT TURNAROUND TIME IS 0 DAYS

SAMP. NO.	QCC M	DESCRIPTION	SAMPLE # STATUS CONT.	CITY	STATE	STORE/ SAROAD LOC NO	BEG. DATE	BEG. TIME	END. DATE	END. TIME
001	S	LINWOOD QUARRY-UMTHUN TRUCKING	0 0		IOWA		11/30/89		12/04/89	12:35
002	S	LINWOOD QUARRY-UMTHUN TRUCKING	0 0		IOWA		11/30/89		12/04/89	13:40

TABLE OF CODES

SAMP. NO. = SAMPLE IDENTIFICATION NUMBER  
 QCC = QUALITY CONTROL SAMPLE/AUDIT CODE  
 M = MEDIA OF SAMPLE (A=AIR, T=TISSUE, H=HAZARDOUS MATERIAL, S=SEDIMENT/SOIL, W=WATER)  
 STORET/SAROAD LOC. NO. = A SAMPLING SITE LOCATION  
 IDN = IDENTIFICATION NUMBER  
 BEG. DATE = THE DATE SAMPLING WAS STARTED  
 BEG. TIME = THE TIME SAMPLING WAS STARTED  
 END. DATE = THE DATE SAMPLING WAS ENDED  
 END. TIME = THE TIME SAMPLING WAS STOPPED  
 A = RESERVED  
 B = RESERVED  
 PES = PESTICIDES BY CONTRACT  
     = DIOXINS/FURANS BY EPA  
 E = EXPLOSIVES BY CONTRACT  
 FLD = FIELD MEASUREMENTS BY EPA  
 G = MINERALS & DISSOLVED MATERIALS BY EPA  
 HER = HERBICIDES BY EPA  
 I = ION CHROMATOGRAPHY ANALYSES BY EPA  
 MC = METALS BY CONTRACT  
 BNC = BASE NEUTRALS BY CONTRACT  
 L = FISH PHYSICAL DATA BY EPA  
 MET = METALS BY EPA  
 N = FISH TISSUE PARAMETERS BY EPA  
 VC = VOLATILES BY CONTRACT  
 P = PESTICIDES BY EPA  
 Q = FLASH POINT ANALYSES BY EPA  
 R = RESERVED  
 BN = SEMIVOLATILE BY EPA  
 T = CYANIDE PHENOL BY EPA  
 U = RESERVED  
 VOA = VOLATILE ORGANICS BY EPA  
 HC = HERBICIDES BY CONTRACT  
 X = RESERVED  
 Y = RESERVED  
 TRK = ACTIVITY TRACKING PARAMETERS BY EPA  
 STORET DETECTION IDENTIFIERS  
 BLANK = NO REMARKS  
 J = DATA REPORTED BUT NOT VALID BY APPROVED QC PROCEDURES  
 I = INVALID SAMPLE/DATA = VALUE NOT REPORTED  
 U = LESS THAN (MEASUREMENT DETECTION LIMIT)  
 M = DETECTED BUT BELOW THE LEVEL FOR ACCURATE QUANTIFICATION  
 O = PARAMETER NOT ANALYZED  
 CONTRACTOR/ IN HOUSE / FIELD MEDIA GROUPS  
 FIELD = \* \* \* = AF, HF, SF, TF, WF, ZZ  
 CONTRACTOR = \* \* = HA, HC, HJ, HK, HO, SC, SJ, SK, SO, SH, TC, TJ,  
               TK, TO, TW, WA, WC, WE, WJ, WK, WO, WW  
 IN HOUSE = \* = ALL OTHERS

QUALITY CONTROL AUDIT CODES  
 A = TRUE VALUE FOR CALIBRATION STANDARD  
 B = CONCENTRATION RESULTING FROM DUPLICATE LAB SPIKE  
 C = MEASURED VALUE FOR CALIBRATION STANDARD  
 D = MEASURED VALUE FOR FIELD DUPLICATE  
 F = MEASURED VALUE FOR FIELD BLANK  
 G = MEASURED VALUE FOR METHOD STANDARD  
 H = TRUE VALUE FOR METHOD STANDARD  
 K = CONCENTRATION RESULTING FROM DUPLICATE FIELD SPIKE  
 L = MEASURED VALUE FOR LAB DUPLICATE  
 M = MEASURED VALUE FOR LAB BLANK  
 N = MEASURED VALUE FOR DUPLICATE FIELD SPIKE  
 P = MEASURED VALUE FOR PERFORMANCE STANDARD  
 R = CONCENTRATION RESULTING FROM LAB SPIKE  
 S = MEASURED VALUE FOR LAB SPIKE  
 T = TRUE VALUE OF PERFORMANCE STANDARD  
 W = MEASURED VALUE FOR DUPLICATE LAB SPIKE  
 Y = MEASURED VALUE FOR FIELD SPIKE  
 Z = CONCENTRATION RESULTING FROM FIELD SPIKE

MEDIA CODES  
 A = AIR  
 T = BIOLOGICAL (PLANT & ANIMAL) TISSUE  
 H = HAZARDOUS MATERIALS/MAN MADE PRODUCTS  
 S = SEDIMENT, SLUDGE & SOIL  
 W = WATER

UNITS  
 NA = NOT APPLICABLE  
 PG = PICOGRAMS (1 X 10-12 GRAMS)  
 NG = NANOGRAMS (1 X 10-9 GRAMS)  
 UG = MICROGRAMS (1 X 10-6 GRAMS)  
 MG = MILLIGRAMS (1 X 10-3 GRAMS)  
 M3 = METER CUBED  
 MPH = MILES PER HOUR  
 SCM = STANDARD (1 ATM, 25 C) CUBIC METER  
 KG = KILOGRAM  
 L = LITER  
 C = CENTIGRADE DEGREES  
 SU = STANDARD (PH) UNITS  
 # = NUMBER  
 LB = POUNDS  
 IN = INCHES  
 M/F = MALE/FEMALE  
 M2 = SQUARE METER  
 I.D. = SPECIES IDENTIFICATION  
 GPM = GALLONS PER MINUTE  
 CFS = CUBIC FEET PER SECOND  
 MGD = MILLION GALLONS PER DAY  
 1000G = FLOW, 1000 GALLONS PER COMPOSITE  
 UMHOS = CONDUCTIVITY UNITS (1/OMHMS)  
 NTU = TURBIDITY UNITS  
 PC/L = PICO (1 X 10-12) CURRIES PER LITER  
 MV = MILLIVOLT  
 SQ FT = SQUARE FEET  
 P/CM2 = PICOGRAMS PER SQ. CENTIMETER  
 U/CM2 = MICROGRAMS PER SQ. CENTIMETER

## ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 0-DSX04

COMPOUND	UNITS	001	002
SM01 SILVER BY ICAP	:MG/KG:3.3	U :2.9	U :
SM02 ALUMINUM BY ICAP	:MG/KG:8400	J :5800	U :
SM03 ARSENIC BY ICAP	:MG/KG:7.9	J :7.4	U :
SM04 BARIUM BY ICAP	:MG/KG:76	J :66	U :
SM05 BERYLLIUM BY ICAP	:MG/KG:0.69	J :1.5	U :
SM06 CADMIUM BY ICAP	:MG/KG:1.6	J :1.5	U :
SM07 COBALT BY ICAP	:MG/KG:4.5	J :2.1	J :
SM08 CHROMIUM BY ICAP	:MG/KG:14	J :8.7	J :
SM09 COPPER BY ICAP	:MG/KG:20	J :17	U :
SM10 IRON BY ICAP	:MG/KG:9200	J :7800	J :
SM11 MANGANESE BY ICAP	:MG/KG:290	J :290	J :
SM12 MOLYBDENUM BY ICAP	:MG/KG:NA	U :NA	O :
SM13 NICKEL BY ICAP	:MG/KG:120	J :110	U :
SM14 LEAD BY ICAP	:MG/KG:32	J :23	U :
SM15 ANTIMONY BY ICAP	:MG/KG:20	U :17	U :
SM16 SELENIUM BY ICAP	:MG/KG:1.6	U :1.2	J :
SM17 TITANIUM BY ICAP	:MG/KG:NA	O :NA	O :
SM18 THALLIUM BY ICAP	:MG/KG:1.8	J :2.7	J :
SM19 VANADIUM BY ICAP	:MG/KG:460	J :430	U :
SM20 ZINC BY ICAP	:MG/KG:35	J :17	J :
SM21 CALCIUM BY ICAP	:MG/KG:240000	J :220000	U :
SM22 MAGNESIUM BY ICAP	:MG/KG:12000	J :20000	U :
SM23 SODIUM BY ICAP	:MG/KG:1300	J :1400	J :
SM24 POTASSIUM BY ICAP	:MG/KG:3000	J :3600	U :
SS01 PHENOL	:UG/KG:530	U :480	U :
SS03 BIS(2-CHLOROETHYL) ETHER	:UG/KG:530	U :480	U :

## ANALYSIS REQUEST DETAIL REPORT

ACTIVITY: O-DSXD4

COMPOUND	UNITS	001	002
SS04 2-CHLOROPHENOL	:UG/KG:530	U :480	U :
SS05 1,3-DICHLOROBENZENE	:UG/KG:530	U :480	U :
SS06 1,4-DICHLOROBENZENE	:UG/KG:530	U :480	U :
SS07 BENZYL ALCOHOL	:UG/KG:530	U :480	U :
SS08 1,2-DICHLOROBENZENE	:UG/KG:530	U :480	U :
SS09 2-METHYLPHENOL (O-CRESOL)	:UG/KG:530	U :480	U :
SS10 BIS(2-CHLOROISOPROPYL) ETHER	:UG/KG:530	U :480	U :
SS11 4-METHYLPHENOL (P-CRESOL)	:UG/KG:530	U :480	U :
SS12 N-NITROSO-DIPROPYLAMINE	:UG/KG:530	U :480	U :
SS13 HEXACHLOROETHANE	:UG/KG:530	U :480	U :
SS14 NITROBENZENE	:UG/KG:530	U :480	U :
SS15 ISOPHORONE	:UG/KG:530	U :480	U :
SS16 2-NITROPHENOL	:UG/KG:530	U :480	U :
SS17 2,4-DIMETHYLPHENOL	:UG/KG:530	U :480	U :
SS18 BENZOIC ACID	:UG/KG:2600	U :2300	U :
SS19 BIS(2-CHLOROETHOXY) METHANE	:UG/KG:530	U :480	U :
SS20 2,4-DICHLOROPHENOL	:UG/KG:530	U :480	U :
SS21 1,2,4-TRICHLOROBENZENE	:UG/KG:530	U :480	U :
SS22 NAPHTHALENE	:UG/KG:140	J :480	U :
SS23 4-CHLOROANILINE	:UG/KG:530	U :480	U :
SS24 HEXACHLOROBUTADIENE	:UG/KG:530	U :480	U :
SS25 4-CHLORO-3-METHYLPHENOL	:UG/KG:530	U :480	U :
SS26 2-METHYLNAPHTHALENE	:UG/KG:230	J :480	U :
SS27 HEXACHLOROCYCLOPENTADIENE	:UG/KG:530	U :480	U :
SS28 2,4,6-TRICHLOROPHENOL	:UG/KG:530	U :480	U :
SS29 2,4,5-TRICHLOROPHENOL	:UG/KG:2600	U :2300	U :

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 0-DSX04

COMPOUND	UNITS	001	002	003
SS30 2-CHLORONAPHTHALENE	:UG/KG:530	U :480	U :	
SS31 2-NITROANILINE	:UG/KG:2600	U :2300	U :	
SS32 DIMETHYLPHthalATE	:UG/KG:530	U :480	U :	
SS33 ACENAPHTHYLENE	:UG/KG:530	U :480	U :	
SS34 3-NITROANILINE	:UG/KG:2600	U :2300	U :	
SS35 ACENAPHTHENE	:UG/KG:530	U :480	U :	
SS36 2,4-DINITROPHENOL	:UG/KG:2600	U :2300	U :	
SS37 4-NITROPHENOL	:UG/KG:2600	U :2300	U :	
SS38 DIBENZOFURAN	:UG/KG:530	U :480	U :	
SS39 2,4-DINITROTOLUENE	:UG/KG:530	U :480	U :	
SS40 2,6-DINITROTOLUENE	:UG/KG:530	U :480	U :	
SS41 DIETHYLPHthalATE	:UG/KG:530	U :480	U :	
SS42 4-CHLOROPHENYL PHENYL ETHER	:UG/KG:530	U :480	U :	
SS43 FLUORENE	:UG/KG:530	U :480	U :	
SS44 4-NITROANILINE	:UG/KG:2600	U :2300	U :	
SS45 4,6-DINITRO-2-METHYLPHENOL	:UG/KG:2600	U :2300	U :	
SS46 N-NETROSODIPHENYLAMINE	:UG/KG:530	U :480	U :	
SS47 4-BROMOPHENYL PHENYL ETHER	:UG/KG:530	U :480	U :	
SS48 HEXACHLOROBENZENE	:UG/KG:530	U :480	U :	
SS49 PENTACHLOROPHENOL	:UG/KG:2600	U :2300	U :	
SS50 PHENANTHRENE	:UG/KG:530	U :960	U :	
SS51 ANTHRACENE	:UG/KG:530	U :480	U :	
SS52 DI-N-BUTYL PHTHALATE	:UG/KG:530	U :480	U :	
SS53 FLUORANTHENE	:UG/KG:530	U :480	U :	
SS54 PYRENE	:UG/KG:530	U :480	U :	
SS55 BUTYL BENZYL PHTHALATE	:UG/KG:530	U :480	U :	

## ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 0-DSX04

COMPOUND	UNITS	001	002						
SS56 3,3'-DICHLOROBENZIDINE	:UG/KG:	1100	U : 480	U :	:	:	:	:	:
SS57 BENZO(A)ANTHACENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS58 BIS(2-ETHYLHEXYL)PHTHALATE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS59 CHRYSENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS60 DI-N-OCTYL PHTHALATE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS61 BENZO(B)FLUORANTHENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS62 BENZO(K)FLUORANTHENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS63 BENZO(A)PYRENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS64 INDENO(1,2,3-CD)PYRENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS65 DIBENZO(A,H)ANTHACENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
SS66 BENZO(G,H,I)PERYLENE	:UG/KG:	530	U : 480	U :	:	:	:	:	:
ST13 SULFIDE	:MG/G :	15	U : .5	U :	:	:	:	:	:
ZZ01 SAMPLE NUMBER	:NA	:001	:002	:	:	:	:	:	:
ZZ02 ACTIVITY CODE	:NA	:DSX04	:DSX04	:	:	:	:	:	:

## GROUP ANALYSIS SUMMARY

SAMPLE:	A	B	PES	C	E	FLD	G	HER	I	MC	BNC	L	MET	N	VC	PES	G	R	BN	T	U	VDA	HC	X	Y	TRK	COMMENTS
001	:	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	65	1	0	0	0	0	0	2	
002	:	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	65	1	0	0	0	0	0	2	
DETERMI- NATIONS	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	130	2	0	0	0	0	0	4	
ANALYSES:	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2	0	0	0	0	0	2	

ACTIVITY OSX04 LINWOOD QUARRY

THE PROJECT LEADER SHOULD CIRCLE ONE - STORET, SAROAD, OR ARCHIVE.

CIRCLE ONE:      STORET      SAROAD      ARCHIVE

DATA APPROVED BY LABC FOR TRANSMISSION TO PROJECT LEADER ON 03/13/90 16:28:36 BY A. Jirka